



FACT SHEET

Module 2

Preparing To Operate A Vehicle

Pre-Drive Inspection

The driver will become familiar with the specific tasks related to approaching the vehicle in a safe manner. The student will develop a sequence or procedure with the guidance of the instructor.

On Approach to Vehicle

- Check outside of vehicle.
- Check for small children and pets.
- Check for obvious fluid leakage. Identify the source of any leaking fluids (coolant, air conditioner condensation, brake, motor oil, transmission fluid).
- Check for tire inflation, position, and damage.
- Check for obvious physical damage to body or glass.
- Check lights for cleanliness
- Check for unwanted passengers
- Approach driver's door from front when parked at curb.
- Approach from rear when parked in a parking lot.

On Arrival to Vehicle

Store all valuables in trunk or secure on floor of vehicle.

Entering

Door Locks:

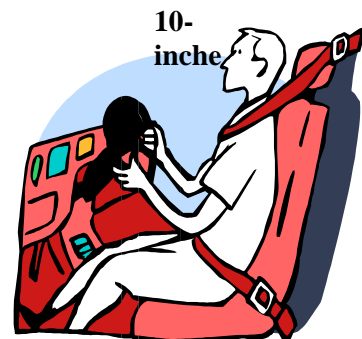
Three types of door locks

1. Manual-push button or push lever
2. Automatic-controlled by the driver or passengers
 - a. Vehicle automatically locks doors when vehicle placed in gear
3. Child Safety locks- located on back doors of four door vehicles.
 - a. Manual switch that locks doors when the door is shut.
 - b. Doors are opened from the outside of the vehicle.

OPERATING VEHICLE CONTROL DEVICES

Seating Position

If manually controlled, the adjustment lever to move the seat forward or back is typically located at the lower front or right side of the driver's seat. A second lever or knob located on the left side of the seat in some vehicles allows the driver to change the angle of the seat back. In vehicles with electric power seats, the controls are usually located on the lower left side of the driver's seat or in a control cluster located on the side door panel.



The seat should be adjusted so the top of the steering wheel is in line with the top of the shoulders. The top of the steering wheel should not be more than one inch above the height of the shoulders. Sit all the way back into the seat with your hips and back against the seat back. Sit at least 10 inches from the steering wheel. Adjust the seat to give a slight bend in the knees and elbows. This will provide the best protection in the event the air bag deploys.

Head Restraint

All new vehicles are equipped with head restraints to help reduce whiplash injuries if the vehicle is struck from the rear. Some vehicles are equipped with head restraints that can be adjusted up or down to position the restraint behind the middle of the occupant's head. Some vehicles are equipped with head restraints that are built into the top of the seat and cannot be adjusted. Drivers should be sure that the restraint is adjusted to a position so that the top is no higher than the top of the ears.

Steering

Look at the steering wheel as though it were a clock. Place the hands at 9 o'clock and 3 o'clock, or slightly lower to 7 and 5. This provides the desired balanced hand position and reduces the possibility of turning the wheel too much.

Before one hand releases the wheel to adjust any information, comfort, or control device, the hand not performing the action should be moved to the 7-8 or 4-5 o'clock position, depending on steering wheel opening. The driver should not place one hand at the top of the wheel when moving forward due to air bag injury potential and lack of balanced steering control. It is critical to remember that when operating any vehicle control, comfort, or communication device the driver's attention must not be diverted from the path of travel for more than an instant. Controls perform the same function in each vehicle. However, location and characteristics not only vary from one type of vehicle to another, but between vehicles of the same make and model. Some of these differences are:

Modern vehicles require very little steering to turn. This affects how we use the steering wheel. Most of us learned to steer using the hand-over-hand method because we needed to turn the wheel many times to turn the vehicle. The steering wheel is always turned in the direction the driver wants the vehicle to move, whether moving forward or in reverse. However, the amount of steering input, and energy needed, will vary according to the type of steering, number of turns lock to lock, and speed of travel. Target the path of travel before starting any steering inputs. It is wise to have the vehicle in motion when using the steering wheel.

Some vehicles come equipped with variable effort steering. Steering effort is increased or decreased based on the speed of the vehicle. If the vehicle is traveling faster, the effort (resistance) needed to maneuver the vehicle is less. If the vehicle is traveling slowly, the effort (resistance) to turn is greater.

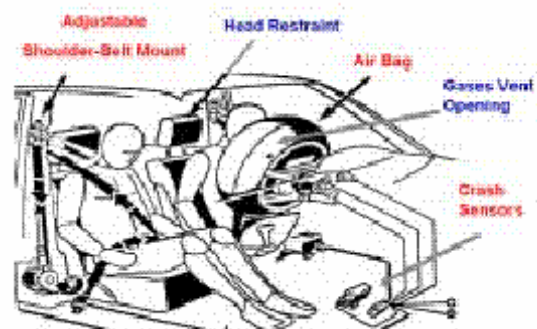
Steering Wheel Adjustment

The angle of the steering wheel is controlled by a lever located on the left or right side of the steering column in some vehicles. Other vehicles permit the driver to change the angle of the steering wheel by adjusting the steering column. An adjustment lever located on the bottom side of the steering column, near the firewall, permits the driver to raise or lower the steering column to achieve a better steering wheel angle.

Airbags

Driver and Front Passenger Air Bags are designed to inflate in a frontal impact. Drivers should sit at least 10 inches from the air bag because it inflates to six or seven inches in size at speeds up to 200 mph. Tilt the steering wheel as far down as comfortable to point at your chest, not at your face. Always wear a seat belt and secure children in the rear seat. To reduce forearm and hand injuries, hands should be placed on the lower half of the steering wheel, with knuckles on the outside and thumbs stretched along the rim of the wheel.

Side Impact Air Bags are designed to protect the torso and head in side impact collisions. Care should be taken not to sit too close to the door or to lean towards the air bag.



Mirrors

Adjust the mirrors, inside and outside. For vehicles equipped with remote controlled outside mirrors, these controls may be located on the left side of the dash, the driver's side arm rest, or center console. However, no matter how the mirrors are adjusted, there are areas that cannot be seen and require drivers to turn their heads to check prior to making a move to the left or right.

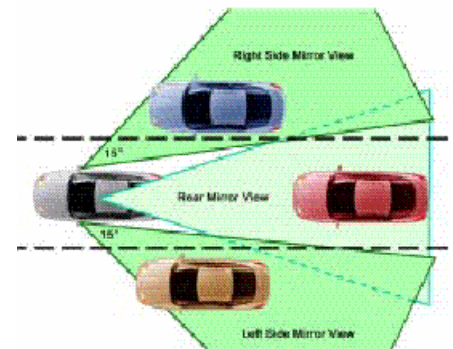
- Adjust inside mirror (rearview) for maximum view out the rear window. If it is necessary to move your head to get a clear, full view, the mirror is not adjusted correctly.
- Adjust outside mirrors to show a slight amount of the side of your vehicle.

Enhanced Mirror Settings The Blindzone and Glare Elimination (BGE)

Adjust the inside mirror so that it frames the entire rear window and becomes the primary mirror for viewing the rear.

Adjust side mirrors to reduce mirror blind spot and headlight glare from the rear.

Adjust the left side mirror by leaning your head towards the left side window, and set the left mirror so that the driver can barely see the side of the car. To adjust the right side mirror, lean to the right over the center console, and set the right mirror to barely see this side of the car. These adjustments provide 15 degrees viewing area to each side of the vehicle. This contemporary mirror setting reduces the overlap between the inside and side view mirrors and allows the driver to monitor the adjacent lane. Traditional settings should be used if the inside mirror rear window view is blocked.



The new mirror setting have five major advantages:

First, turning to look into the blindzones, which can be uncomfortable and annoying, is no longer necessary.

Second, only a brief glance at the mirror is required to view the blindzone, as opposed to the longer time required when turning the head. At highway speeds, turning takes your eyes off the road for about 100 feet.

Third, glancing at the mirror leaves the forward scene in your peripheral view, while turning your head completely eliminates the forward view.

Fourth, the blindzones can be easily included in your visual scanning.

Fifth, at night, glare from the outside mirrors is virtually eliminated. The reason for this is that a following car's headlamps are not visible until the car moves into the blindzone, and at that point, the high intensity portion of the headlamp's beam does not hit the mirror.

Another effective tool for blind areas are mirrors to help increase side view angles such as the "Smart Mirrors." Attached to your side view mirrors, they, too, will help eliminate blind areas.

All motor vehicles must have a rear view mirror that provides a view of the highway for at least 200 feet to the rear. If a load or trailer obscures the driver's normal view through the rear window, the vehicle must have two additional rear view mirrors, one on each side of the vehicle.

Safety Belts

While safety belts protect occupants in a crash, they serve an equally important role of keeping the driver firmly in place behind the steering wheel, allowing better control of the vehicle. For maximum protection, the safety belt should be positioned under jackets, coats, sweaters etc., as low on the hips or thighs as possible. After fastening the belt, grasp the shoulder belt and pull upward to take up the slack in the belt across hips. Make sure that all passengers do the same.

Seatbelts

Vehicles that have been in any accident should have the seatbelts and shoulder straps replaced. See your owner's manual regarding seatbelt replacement.

Montana Law

Law requires occupants to wear safety belts and/or shoulder straps when riding in the front seat of cars and pick-ups equipped with these devices by the factory. Studies by the National Highway Traffic Safety Administration show that when worn, safety belts:

- reduce your chances of serious injury in an auto accident by 50%.
- are 60-70% effective in preventing fatalities in auto accidents.

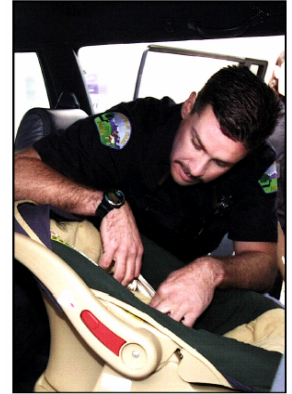
Child Restraints are Required

Automobile crashes are the leading cause of death for American children over one year of age. Some 1,500 children die in auto accidents each year. Another 100,000 are injured. Most of these deaths and injuries can be avoided if parents take the time to buckle their children into an approved child restraint system.

Montana Law

Law requires anyone carrying children under the age of six years and weighing less than 60 pounds (effective 7/1/03) in a non-commercial motor vehicle to be properly protected in an approved child car safety seat. The law applies to cars manufactured with car safety belts after January 1, 1966. Proper protection means:

- using approved safety seats (seats that meet federal safety standards).
- the child must be snugly fitted into safety seats with the straps that are attached to the seat.
- the safety seat must be fastened to the automobile with the car safety belt.
- using safety seats on every trip.



Accelerator Pedal

This foot-operated pedal is suspended from the firewall on the right side of the driver's position. Speed is controlled by adjusting even pressure on the pedal. Some vehicles have electronic adjustments for the foot pedals. Extensions are available for special needs of the driver in reaching the pedal with the foot in a proper position.

Brake Pedal

This pedal is located to the left of the accelerator. The driver slows the vehicle by applying a squeezing pressure on the pedal with the heel of the foot on the floor. How much and how rapidly the vehicle slows is determined by how much pressure the driver applies to the brake pedal and the friction between the tires and road surface.

All vehicles must have two brake systems designed so that if one fails the other still works. Foot brakes must stop a vehicle that is traveling 20 mph on dry pavement within a distance of 25 feet. The emergency or parking brake must stop the vehicle within 55 feet under similar conditions, and must hold the car stationary on a hill when parked.

Clutch

The clutch is located on the left side of the brake in a manual transmission vehicle. A clutch is a friction device that disengages and engages the engine from the transmission to allow for transition from motionless to movement and for gear changes.

For a smooth transition of power, discovering the "friction point" in individual vehicles is essential. When depressing the clutch, keep the heel of the left foot pointing down, and use mostly ankle flexion to help prevent rough transitions

Dead Pedal

Located on the left side of the brake (clutch) area; and is used to maintain driver balance when braking, accelerating, and steering.

Parking Brake

The parking brake is sometimes mistakenly referred to as an emergency brake. The purpose of the parking brake is to hold a vehicle in place when it is parked and to protect the transaxle, constant velocity joints, or transmission. *Many*

new vehicle owner manuals indicate that it is important to set the brake before putting the gear shifter in (P)ark.
Parking brakes are either manual or automated electronic brakes.

The automatic systems engage the parking brake when the car is stopped and the transmission is set in park, or the engine turned off. In some cars, it also engages if the car begins to roll downhill, a feature especially welcome for uphill starts with manual-transmission cars. Putting the car in gear and stepping on the regular brake pedal disengages the system.

Manual parking brakes may be either a foot-operated pedal located to the far left side of the driver's position or a hand-operated lever to the right of the driver on the floor or center console. To set a foot-operated parking brake, push down firmly on the pedal. Depending on the vehicle, one of two methods is used to release the brake. In some vehicles, the pedal is pushed down until a click is heard; then the pedal is released. In other vehicles, the brake release lever is located above the foot pedal on the underside of the dashboard. To set a floor or console mounted parking brake, simply pull back firmly on the lever. To release the brake, lift the lever slightly and press down the button located on the top of the lever with the thumb and lower the lever.

Gear Selector Lever

In a vehicle with an automatic transmission, the gear selector lever is located either on the steering column or on a console located between the front seats. In a vehicle with a manual transmission, the shifting lever is located on the center console, on the floor to the right of the driver, or, in older vehicles, on the right side of the steering column.

Gear Selector Positions

P (park), **R** (reverse), **N** (neutral), **D** (drive), **O** (overdrive), **D1** (low drive), **D2** (2nd drive)

Occasionally, the "O" is a button that is pushed on the side of the gear selector lever. These letters are seen somewhere on the instrument panel, across the steering column, or on the console.

On a manual transmission vehicle, there are usually 4 or 5 gear positions in an "H" pattern,

1	3	5
	N	
2	4	R

"R" (Reverse) can be on any one of the corners. The gearshift usually has the pattern and place printed on the top of it. Getting the vehicle into reverse occasionally requires the driver to lift up on the gear shift, push down on the gear shift, or locate a button that has to be pushed or pulled while positioning the gear shift into reverse. The clutch must be depressed to the floor when shifting.

Ignition Switch

This switch locks the steering wheel and shifting lever, and enables the driver to start and turn off the engine or use the accessories. The ignition is located on the right side of the steering column near the dashboard or in the dashboard

Ignition Switch Positions

Lock, Off, Accessory (Acc), On, and Start

Turn Signal Lever

All motor vehicles built after January 1, 1955, must have flashing electric left-turn and right-turn signals on the front and rear with a switch that can be controlled by the driver. The turn signal lever is located on the left side of the steering column, the lever is moved up to signal a movement to the right and down for a movement to the left. While the signal will cancel after a turn, the driver may have to cancel the signal manually after a slight turn. The signal is used to indicate a lane change by moving the lever halfway up or down with the thumb hooked on the steering wheel. The signal begins to work as the halfway point is reached and can be manually held in this position or locked prior to a lane change. Manually holding in position allows the driver to easily release the lever prior to the movement so that a signal

to turn will not be confused with the lane change or merge. The front signals must be white or amber and the rear signals must be red or amber.

Hazard Flasher

The purpose of the hazard flashers is to warn other drivers of a problem and to increase their awareness of the presence of your vehicle. The switch for the lights is usually located on the top or right side of the steering column or on the dash. When operated, both front and rear turn signal lights flash.

Cruise/Speed Control

This device allows a driver to select and travel at a set speed without having to keep a foot on the accelerator or the brake. The controls are located either on the steering wheel or a stem on the left side of the steering column. The control options include on/off, set/accelerate, and coast and resume. Speed control can be cancelled at any time by pressing the brake pedal or touching the off switch

Windshield Wipers and Washers

This control is frequently located on the turn signal lever. Two switches are often involved, one that controls the speed of the wipers and a second that controls the washer fluid. All motor vehicles must be equipped with wipers to keep the windshield clear of rain, snow, or other moisture.

Windows and Windshields Must:

- be made of approved safety glass;
- be replaced when damage to the glass hampers the driver's view;
- be kept free of signs or stickers not required by law;
- not be blocked by any object placed or hung in the vehicle;
- be kept free of frost, snow, dirt, or anything else that obscures the driver's visibility; and
- not be treated with a mirror surface or other substance that makes them difficult to see through, even from the outside.

Vehicle Lights

Some vehicles are equipped with daylight running lights, which may operate the headlights without having the taillights on. It is recommended by the National Highway Traffic Safety Administration (NHTSA) to use the headlights whenever the vehicle is moving, especially when not equipped with the daylight running lights. The light switch is often located on a steering stalk or on the dash panel to the left and is often a multi-purpose switch for parking lights, headlights, high beam, or low beam. A panel switch is often used to adjust the brightness of the dash panel lights and interior lights.

Light Positions

When turning on the headlights of a vehicle that does not have automatic lights (lights that come on automatically when outside light is low) there are usually three positions: Off, park lights, and headlights. Do not drive using only park lights.

Headlights

Two headlamps (with high and low beams) are required and must be aimed to light the road without blinding oncoming drivers. High beams must allow the driver to see people and vehicles at least 350 feet away. Low beams must light the roadway at least 100 feet ahead. Headlights must not be covered with any reflective, opaque, or non-transparent material.

Park Lights

All motor vehicles must have functioning red or amber lights visible for at least 100 feet to the front, side, and rear in normal sunlight. Parking lights indicate a stopped vehicle and should not be used by themselves when moving the vehicle.

Stop or Brake Lights

All motor vehicles must have functioning red or amber brake lights visible for at least 100 feet to the rear in normal sunlight. Brake lights must be designed to come on when you apply the foot brake. Keep the brake light lenses clean of dirt and snow.

Taillights

Vehicles built before January 1, 1956, and motorcycles must have at least one red light mounted on the rear. All other motor vehicles, trailers, and semi-trailers must have at least two red lights mounted on the left and right rear. These taillights must be visible at least 500 feet to the rear.

Horn

The horn is generally operated by pressing a button located on a steering wheel cross bar or on the pad on the lower half of the steering wheel above or below the air bag cover. It is usually marked with the horn symbol to indicate the location. All motor vehicles must have a horn that can be heard at least 200 feet away. Horns with unreasonably loud or harsh sounds are prohibited.

Door Locks

In vehicles equipped with manual locks, each door has its own locking device. An additional master control is usually located on the driver side arm rest in vehicles with electric door locks. Child safe rear door safety locks are an option, which prevent the rear doors from being opened from the rear seats.

Hood Release

This lever is usually located on the left side of the driver's compartment under the instrument panel. In some vehicles it is located under or just to the right of the steering column. To open the hood, a second latch located in the front of the vehicle must be released.

Trunk Release

An option in some vehicles is to have a trunk release lever located on the floor just to the left of the driver's seat. In other vehicles, the release mechanism is a button located in the glove box. Emergency trunk releases are now installed in the trunk of newer vehicles to prevent someone from getting locked in the trunk. It is a glow in the dark handle that can be seen from the inside.

Fuel Door Release

Usually on the floor next to the trunk release lever. May also be located in the glove box. There is also an emergency release lever or pull cord in the trunk of the vehicle to use if the floor mounted lever malfunctions.

Sun Visor

Never drive with the sun visor(s) adjusted so that it is pointing towards you. Always push the visor away from the head and face. Some of the newer vehicles have secondary visors that extend beyond the normal visor or can be positioned to block the sun on the side and to the front.

Heater, Ventilation, and Air Conditioner

These control switches are located in a cluster on the instrument panel. Some vehicles have a separate switch located on the instrument panel that operates a rear window defroster.

Speedometer

Tells speed in miles per hour or kilometers per hour. This can be a dial, bar type display or digital display usually in the center of the instrument panel and usually one of the larger displays.

Tachometer

Indicates engine revolutions per minute in 1000's (rpm x 1000). This is usually a dial with an upper zone colored in red. Driving in the red zone indicates probable engine damage. Revving the engine while in park or neutral can cause serious engine damage before "red lining" and should be avoided.

Odometer

Indicates the number of miles driven on the vehicle. Many vehicles have 1-2 additional odometers/trip meter/ fuel tank meter. When purchasing a vehicle, the law requires an odometer statement from the seller to the buyer. There is usually a small button near the odometer to reset the trip/fuel tank meter.

Fuel Gauge Indicator

Some fuel gauges will go to the "E" (empty) mark when the vehicle is turned off. Occasionally the indicator will move when turning, stopping, or starting

Temperature Gauge

Measures the engine coolant temperature. If this light comes on the engine coolant has overheated. Pull over to the side of the roadway, stop your vehicle, turn off the air conditioning, and let the engine idle for a few moments; then turn the vehicle off. See owner's manual for specific details.

Temperature Light

If the low coolant light comes on, the amount of coolant in the surge tank is low. If the temperature light comes on, the engine coolant is overheated, or the automatic transaxle fluid has overheated. See owner's manual for specific details on what to do if this happens.

Oil Pressure Light/ Gauge

indicates that the oil pressure is low, or the oil level is so low the engine is getting hot. Do not drive if this light comes on, serious damage to the engine could result.

Alternator Warning Light /Battery Warning Light

If this light does not come on when starting the vehicle, there may be a charging system malfunction. See your owner's manual for specific details.

Airbag Warning Light

This light indicates that the airbag electrical system is working. If the light comes on and stays on or flashes while driving, the airbag system may not be working properly and needs to be serviced.

Brake System Warning Light

This red light indicates that the parking brake is engaged. This light will also come on if the brake fluid level is low

Anti-Lock Brake System Warning Light

The systems restarts every time the vehicle is started. If the light comes on while driving, stop, turn the vehicle off, and restart it. See your owner's manual for specific information about service.

Turn Signal Indicator Light

Indicates that the turn signal lever has been activated. They will automatically turn off, if the turn is sufficient to trip the lever, otherwise the signals must be turned off manually. If the signals flash faster than normal, it usually means that one of the bulbs has burned out and needs to be replaced.

Hazard Lights

When the hazard lights are activated, both turn signals will flash.

High Beam Indicator Light

Somewhere in the instrument panel, when the high beams are on, a colored (blue or amber) light will come on indicating the high/bright lights are on.

Safety Belt Reminder Light/Chime

When the driver and/or passenger seatbelts are not fastened, the light will remain on for various amounts of time. There is often a chime that accompanies the warning light. The lights and chimes go out when the seatbelts are fastened.

Other:**Shift up indicator light**

Indicates when shifting up for better fuel economy is advised.

Day Time Running light indicator

Indicates that the daytime running lamps system is on. Some of these lights stay on; others will go off only when the headlamps are turned to the on position.

Fog Lamp

Some vehicles are equipped with fog lamps. In some of those vehicles, the fog lamps will not come on, or automatically shut off if the headlights are on high beam.

Traction Control Indicator Light

Tells the driver if the traction control system is on or off. If tire chains are used, the traction control system can be turned "off". If the vehicle is stuck in snow or mud, turning off the traction control system may help. Spinning the tires at a high rate of speed may cause damage to the transaxle and should be avoided

Low Traction Indicator Light

Warns the driver of current slippery road conditions.

Change Oil Soon Warning Light

This warning light tells you when the oil life left in your vehicle is low. Once the oil is changed, the computer that monitors the miles driven, the engine operating temperatures and number of engine revolutions must be reset. See your owner's manual for complete details on resetting this light.

Security Light

See your owner's manual for specific details regarding the operation of the security system of your vehicle.

Service Engine Soon Warning Light

Monitors the fuel, ignition and emission control systems. Modifications to the engine, transaxle, exhaust or fuel system, or replacing tires not within the specifications of the vehicle manufacturer may cause this light to come on. See your owner's manual for specific information about a steady and flashing service engine soon light.

Service Light

This light indicates a non-emission related failure, and is designed to assist the technician in identifying the problem with the vehicle.

Low fuel Warning Light

Indicates that the fuel level is low and refueling should be done very soon. See owner's manual for exact amount of gas left in tank.

Dome Light:

Lights the interior of the vehicle. Some vehicles have individual controls at various locations for the passengers.

Cruise Control light

Indicates when the cruise control mode is activated.

Glow Light

On diesel vehicles only. Light comes on when ignition is turned to the on position. When the light goes off, it is safe to continue turning the key to the start position.